

Application No. 09/921,844  
Amendment dated September 11, 2008  
Reply to Office Action of June 12, 2008

### **REMARKS**

Applicant cancelled claims 131, 133, 135, 137-145, 205, 206, 213-215, and 272-276 without prejudice or disclaimer of their subject matter, and amended independent claim 219 and dependent claim 277 to further define Applicant's claimed invention. Support for the amendment to independent claim 219 can be found at least on page 13, lines 9-11 and page 14, lines 5-7 of the specification and in FIGS. 12 and 15. No new matter has been added.

In the Office Action, the Examiner allowed independent claim 1 and claims 3, 5, 19-51, and 259-271 dependent therefrom. The Examiner objected to the amendment of October 10, 2007 ("October 2007 Amendment") under 35 U.S.C. § 132(a) contending that it introduced new matter into the disclosure. Applicant respectfully disagrees with the Examiner's contention that "an included angle that is larger than 90 degrees" is "not supported by the original disclosure." (Office Action, page 3, lines 9-10.) Applicant submits that at least for the reasons set forth on page 16, lines 22-25 of the October 2007 Amendment, incorporated by reference herein, the original disclosure supports the language objected to by the Examiner. Nonetheless, to expedite the prosecution of this application, Applicant cancelled independent claim 131 including the objected to language and all claims dependent therefrom. Applicant reserves the right to pursue the subject matter of the cancelled claims without prejudice in a future application. It is submitted that the Examiner's objection under 35 U.S.C. § 132(a) has been overcome.

The Examiner rejected independent claims 131 and 219 and claims dependent therefrom under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, as being obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 6,592,624 to Fraser et al. ("Fraser"). In KSR International Co. v. Teleflex Inc. et al., the Supreme Court reaffirmed the framework for governing obviousness under 35 U.S.C. § 103(a) as set forth in Graham et al. v. John Deere Co. of Kansas City et al., 383 U.S. 1, 148 U.S.P.Q. 459 (1966). (See KSR v. Teleflex, 127 S.Ct. 1727 (2007).) Under Graham v. John Deere, a combination of references that does not teach or suggest each and every element of the claimed invention supports a finding of nonobviousness.

Applicant cancelled independent claim 131 and claims dependent therefrom. Applicant amended independent claim 219 to recite an implant with surface projections

Application No. 09/921,844  
Amendment dated September 11, 2008  
Reply to Office Action of June 12, 2008

having at least one forward facing facet directed at least in part toward said leading end, at least one rearward facet directed at least in part toward said trailing end, "and opposed side facets directed generally toward said sides of said implant, said side facets being located between said forward facet and said rearward facet." Such structure was previously recited in dependent claim 277. FIG. 1A of Fraser shows that triangular projection 18 has three facets, namely, a rearward facet 34 and two opposed side facets 30, 32 converging at crest 36. Contrary to the Examiner's contention, crest 36 of Fraser is not a forward facet as recited in independent claim 219 at least because it does not have "a perimeter with a first side and a second side, said first and second sides of said perimeter being in a convergent relationship and having a second included angle therebetween proximate said peak" of the projection. Furthermore, Fraser does not teach or suggest a forward facet having a perimeter with first and second sides being in a convergent relationship and having an included angle therebetween proximate the peak of the projection. Accordingly, Fraser does not teach or suggest each and every recitation of independent claim 219. Applicant submits that the Examiner's rejections of claims 219, 228-254, and 277-284 under 35 U.S.C. §§ 102(e) and 103(a) over Fraser have been overcome.

The Examiner rejected Independent claim 219 and claims dependent therefrom under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,258,125 to Paul et al. ("Paul") in view of Fraser. Independent claim 219 recites an implant including "surface projections having a base with a maximum width and a maximum length greater than the maximum width, the maximum width of said base being transverse to the maximum length of said base," each of the surface projections including a "forward facet having a maximum length as measured along a line parallel to the maximum length of said base, the maximum length of said forward facet being greater than the maximum length of said base." The Examiner admits that Paul "is silent regarding the length of the forward facet being greater than the maximum length of the base." (Office Action, page 6, lines 14-15.) Moreover, as discussed above, Fraser does not disclose or suggest a forward facet as recited in independent claim 219. Thus, the combination of Paul with Fraser proposed by the Examiner does not teach or suggest each and every recitation of independent claim 219.

Applicant respectfully submits that contrary to the Examiner's contention, it would not have been obvious to one of ordinary skill in the art to form the rearward facet of Paul in

Application No. 09/921,844  
Amendment dated September 11, 2008  
Reply to Office Action of June 12, 2008

view of Fraser "such that the length of the forward facet is greater than the maximum length of the base such that the projections dig into the bone and better resists [sic] expulsion." (Office Action, page 6, lines 18-21.) Fraser teaches a projection 18 having three facets, namely, a rearward facet 34, and opposed side facets 30, 32. Fraser does not teach or suggest a four-faceted projection having a rearward facet as recited in independent claim 219. Paul teaches pyramid-shaped projections 12 each having four facets. (Paul, col. 3, line 42; FIGS. 1 and 9.) Paul teaches that "the angle formed from the tip to the base [of the teeth] is approximately 60°," or "[a]lternatively, teeth 12 have a saw tooth shape." (Paul, col. 3, lines 43-44.) Paul further teaches that the "initial mechanical stability afforded by teeth 12 minimizes the risk of post-operative expulsion of implant 10." (Paul, col. 3, lines 40-42.) Accordingly, Applicant submits that the combination of Fraser and Paul proposed by the Examiner does not provide any teaching, suggestion, or motivation for one of ordinary skill in the art to modify the configuration of teeth 12 in view of the rearward facet of the projection disclosed in Fraser, contrary to the teachings of Paul, to better resist expulsion of the implant as contended by the Examiner.

Moreover, Applicant submits that if the projection of Paul were to be modified to in view of Fraser as proposed by the Examiner, the projection of Paul would be unworkable for its intended purpose at least for the reasons set forth below.

Paul discloses an implant made of allograft bone and teaches that "teeth 12 provide the mechanical interlock by penetrating the end plates" of the vertebrae. (Paul, col. 3, lines 39-40.) Paul teaches the preservation of bone at the endplates and teaches against the "excessive removal of the subchondral bone" from the endplates as it "may weaken the anterior column." (Paul, col. 5, lines 49-51.) Further, Paul states that if the "entire endplate is removed, this may result in subsidence and a loss of segmental stability." (Paul, col. 5, lines 51-53.) In Paul, teeth 12 are made of bone and are configured to penetrate the strong bone of the end plates of the vertebrae.

Fraser teaches an implant made of metal or metal-based alloy. (Fraser, col. 7, lines 28-29.) In Fraser, the metal teeth of the implant are sufficiently strong to penetrate the strong bone of the end plates despite having a back cut. However, if teeth 12 of the bone implant of Paul were modified to include a slope as shown in FIG. 1C of Fraser, the structural integrity of teeth 12 would be reduced. Specifically, the angle between the sides

Application No. 09/921,844  
Amendment dated September 11, 2008  
Reply to Office Action of June 12, 2008

and the base of the teeth would be greatly decreased to reduce the size of the base of the tooth and create an overhang at the peak of the projection. The weakened teeth could break when penetrating the strong bone of the endplates during insertion of the implant. The mechanical interlock between the implant and the vertebrae would be compromised, rendering the implant of Paul unworkable for its intended purpose.

Applicant submits that the Examiner's rejection of claims 219, 228-254, and 277-284 under 35 U.S.C. § 103(a) over Paul in view of Fraser has been overcome.

Applicant submits that independent claim 219 is patentable and that claims 228-254 and 277-284 dependent from independent claim 219, or claims dependent therefrom, are patentable at least due to their dependency from an allowable independent claim.

In view of the foregoing remarks, it is respectfully submitted that the claims, as amended, are patentable. Therefore, it is requested that the Examiner reconsider the outstanding rejections in view of the preceding comments. Issuance of a timely Notice of Allowance of the claims is earnestly solicited.

To the extent any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this reply, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 50-3726.

Respectfully submitted,

MARTIN & FERRARO, LLP

Dated: September 11, 2008

By:   
Amedeo F. Ferraro  
Registration No. 37,129

1557 Lake O'Pines Street, NE  
Hartsville, Ohio 44632  
Telephone: (310) 286-9800  
Facsimile: (310) 286-2795